

Solve

- 1) $8 \begin{bmatrix} -6 \end{bmatrix} - \begin{bmatrix} 7 & 5 \\ -4 & 6 \\ -9 & -5 \end{bmatrix} =$
- 2) $\begin{bmatrix} -8 & 4 & -6 & -8 \end{bmatrix} - 6 \begin{bmatrix} -10 & -2 & 6 & -5 \end{bmatrix} =$
- 3) $4 \begin{bmatrix} -4 & -9 & -7 \\ 1 & 1 & 6 \end{bmatrix} - \begin{bmatrix} 5 & 4 & -2 \\ -10 & -8 & -5 \end{bmatrix} =$
- 4) $-2 \begin{bmatrix} -9 & -9 & -4 & -7 \\ -1 & 7 & -6 & 3 \\ 4 & 7 & 8 & 6 \\ 8 & -7 & -3 & -9 \end{bmatrix} + 4 \begin{bmatrix} 6 & -10 & 7 & -9 \\ 6 & 3 & -8 & 3 \\ -8 & -8 & -3 & 4 \\ 1 & -5 & 4 & 0 \end{bmatrix} =$
- 5) $\begin{bmatrix} 4 & 1 & -8 \\ -4 & 6 & -7 \end{bmatrix} + 2 \begin{bmatrix} -7 & -10 & -1 \\ 9 & 4 & -10 \end{bmatrix} =$
- 6) $\begin{bmatrix} -8 & 8 \\ 3 & 2 \\ -2 & 0 \\ -10 & 1 \end{bmatrix} - 5 \begin{bmatrix} -2 \end{bmatrix} =$
- 7) $3 \begin{bmatrix} -2 & 1 \end{bmatrix} - 6 \begin{bmatrix} 9 \\ -4 \end{bmatrix} =$
- 8) $-2 \begin{bmatrix} 7 & 4 & 1 & 1 \\ 7 & 8 & 1 & 1 \end{bmatrix} - 9 \begin{bmatrix} 5 & 1 & 2 \end{bmatrix} =$

$$9) \quad -6 \begin{bmatrix} 0 & 2 & -9 \\ -6 & -3 & -8 \\ -1 & 2 & -10 \end{bmatrix} - \begin{bmatrix} -4 & 5 & 2 \\ -4 & 6 & -4 \\ 2 & -4 & -2 \end{bmatrix} =$$

$$10) \quad 2 \begin{bmatrix} 1 & 8 & -1 & -4 \\ -7 & 3 & -6 & -1 \\ 4 & -4 & -9 & -5 \end{bmatrix} - 4 \begin{bmatrix} -8 & -7 & -6 & -6 \\ -4 & 3 & -8 & 2 \\ 9 & 1 & 6 & 7 \end{bmatrix} =$$

$$11) \quad \begin{bmatrix} 2 & -2 & 3 & 4 \\ 4 & -6 & -7 & -3 \end{bmatrix} \begin{bmatrix} 6 \\ -1 \\ 7 \\ 7 \end{bmatrix} =$$

$$12) \quad \begin{bmatrix} 9 & -10 \\ 3 & 4 \\ 1 & 6 \end{bmatrix} \begin{bmatrix} -1 & 8 & 0 & -1 \\ 9 & -6 & 4 & 1 \end{bmatrix} =$$

$$13) \quad \begin{bmatrix} -6 & 6 & 0 \\ -4 & 3 & 4 \end{bmatrix} \begin{bmatrix} 1 & -6 \\ -4 & 3 \end{bmatrix} =$$

$$14) \quad \begin{bmatrix} 5 & -9 & 1 & 5 \\ -10 & 4 & -4 & 6 \end{bmatrix} \begin{bmatrix} 6 & -7 & 3 & -8 \\ 4 & -1 & -1 & 7 \\ 5 & 7 & -6 & 2 \\ -6 & -2 & -6 & 5 \end{bmatrix} =$$

$$15) \quad \begin{bmatrix} 8 & -9 \\ -4 & 8 \\ 4 & -6 \\ 9 & -10 \end{bmatrix} \begin{bmatrix} 1 \\ -8 \end{bmatrix} =$$

$$16) \quad \begin{bmatrix} -4 & -8 & 7 \\ -10 & -10 & 9 \end{bmatrix} \begin{bmatrix} -4 & 1 & 9 & 7 \\ 3 & -5 & 5 & -9 \\ 7 & 5 & 1 & 5 \end{bmatrix} =$$

$$17) \quad \begin{bmatrix} -1 \\ -7 \end{bmatrix} \begin{bmatrix} 0 & 7 & -10 \\ -5 & -9 & -4 \\ 3 & -10 & 1 \end{bmatrix} =$$

$$18) \quad \begin{bmatrix} 5 \\ 6 \\ -4 \\ 5 \end{bmatrix} \begin{bmatrix} 4 \end{bmatrix} =$$

$$19) \begin{bmatrix} -1 & 9 & -3 & 6 \\ 3 & 1 & -3 & -6 \\ 3 & 0 & 1 & -1 \\ -9 & 0 & -4 & -4 \end{bmatrix} \begin{bmatrix} -9 \\ -4 \\ 7 \end{bmatrix} =$$

$$20) \begin{bmatrix} -6 & 8 & -10 \\ 8 & 5 & -8 \end{bmatrix} \begin{bmatrix} 7 & -1 & -3 \\ -8 & 1 & 2 \\ -7 & -8 & 9 \end{bmatrix} =$$

$$21) \begin{bmatrix} -9 & 5 & -7 \\ -7 & -9 & -10 \\ 2 & 7 & 3 \end{bmatrix} \begin{bmatrix} 8 & -8 & -3 & -2 \\ -10 & 3 & -4 & 2 \\ -8 & 8 & -5 & -5 \end{bmatrix} =$$

$$22) \begin{bmatrix} 6 & -7 \\ 5 & 2 \\ -5 & 1 \end{bmatrix} \begin{bmatrix} -1 & 0 & 8 \\ -5 & 6 & -4 \end{bmatrix} =$$

$$23) \begin{bmatrix} -4 & -9 \\ -10 & -5 \end{bmatrix} \begin{bmatrix} -7 \\ -2 \end{bmatrix} =$$

$$24) \begin{bmatrix} 8 \\ -4 \end{bmatrix} \begin{bmatrix} -9 \end{bmatrix} =$$

$$25) \begin{bmatrix} -4 & 4 & 8 & -9 \end{bmatrix} \begin{bmatrix} -2 & 7 & 1 \\ 7 & -8 & -1 \\ 0 & -7 & 9 \\ -4 & 8 & -8 \end{bmatrix} =$$

$$26) \begin{bmatrix} 5 \\ 4 \\ 9 \\ -8 \end{bmatrix} \begin{bmatrix} 7 & 3 & -8 \end{bmatrix} =$$

$$27) \begin{bmatrix} 3 & -9 & 5 \\ 7 & -8 & -6 \end{bmatrix} \begin{bmatrix} 7 & 6 & 9 & 1 \\ 9 & -9 & -7 & 5 \\ -7 & 2 & 6 & 2 \end{bmatrix} =$$

$$28) \begin{bmatrix} 8 & -4 & -6 & 3 \\ 4 & -8 & -9 & 2 \\ -5 & 1 & 1 & 7 \end{bmatrix} \begin{bmatrix} 4 & 5 \\ -2 & -7 \\ 4 & 6 \end{bmatrix} =$$

$$29) \begin{bmatrix} 5 & 7 & 7 & -9 \\ 1 & 0 & 8 & -6 \\ -2 & -10 & 0 & -6 \end{bmatrix} \begin{bmatrix} 5 & -9 & 2 \end{bmatrix} =$$

$$30) \begin{bmatrix} 2 & -1 & -9 \\ -6 & 3 & -2 \\ -1 & -1 & -3 \end{bmatrix} \begin{bmatrix} -5 \\ 8 \\ 5 \end{bmatrix} =$$

$$31) \begin{bmatrix} 6 & 0 & -10 \\ 4 & 0 & 2 \\ -1 & -7 & -10 \end{bmatrix} \begin{bmatrix} 1 & -10 & 2 & -1 \\ 3 & 7 & 9 & 9 \\ 7 & 6 & 0 & 6 \end{bmatrix} =$$

$$32) \begin{bmatrix} -9 & 2 & -6 & 8 \\ -7 & 8 & 5 & 3 \end{bmatrix} \begin{bmatrix} -3 & -3 & -8 & 6 \\ -4 & -3 & 2 & -2 \end{bmatrix} =$$

$$33) \begin{bmatrix} -10 & 6 & -10 \\ 6 & -1 & 2 \\ 4 & -10 & 1 \end{bmatrix} \begin{bmatrix} 4 & -5 & 9 \\ 4 & 4 & -10 \\ 6 & 7 & -5 \end{bmatrix} =$$

$$34) \begin{bmatrix} 4 & 0 & 8 & -2 \\ 7 & 1 & -5 & -2 \end{bmatrix} \begin{bmatrix} 1 & 4 & 2 \\ -1 & 8 & 6 \\ -1 & 7 & -6 \\ -9 & -9 & -10 \end{bmatrix} =$$

$$35) \begin{bmatrix} -5 & -4 & -5 & 0 \\ -4 & -5 & -8 & 0 \\ 9 & -3 & 6 & 0 \end{bmatrix} \begin{bmatrix} 3 & 3 & -2 & -7 \\ 9 & -3 & 5 & -9 \\ -10 & -1 & 7 & 3 \\ -9 & -5 & 4 & -2 \end{bmatrix} =$$

$$36) \begin{bmatrix} -6 & -6 & -7 \\ -5 & -5 & 6 \\ -5 & -8 & -2 \end{bmatrix} \begin{bmatrix} 9 & -3 \\ 2 & 5 \end{bmatrix} =$$

$$37) \begin{bmatrix} -2 & -2 & -5 & -1 \\ 6 & 0 & -7 & -2 \end{bmatrix} \begin{bmatrix} 5 \\ 4 \\ -1 \\ -8 \end{bmatrix} =$$

$$38) \begin{bmatrix} 2 & 9 \end{bmatrix} \begin{bmatrix} 5 & -10 \\ -1 & 1 \end{bmatrix} =$$

39)
$$\begin{bmatrix} 4 \\ 2 \\ -10 \end{bmatrix} \begin{bmatrix} -6 & -9 & -8 \end{bmatrix} =$$

40)
$$\begin{bmatrix} 2 \\ 0 \\ -5 \end{bmatrix} \begin{bmatrix} -9 & 1 & 0 & 5 \end{bmatrix} =$$

Solve:

- 41) The Imaginary City Company has 3 products: cookies, donuts, and cakes. All three types are made with different amounts of cups of flour, cups of sugar, and eggs. Cookies are made with 11 cups of flour, 11 cups of sugar, and 7 eggs. Donuts are made with 9 cups of flour, 6 cups of sugar, and 6 eggs. Cakes are made with 4 cups of flour, 3 cups of sugar, and 2 eggs. If cups of flour costs \$6, cups of sugar costs \$4, and eggs costs \$8, what is the cost of each of the three products?

- 42) The David Inc Company has 3 products: caps, shirts, and pants. All three types are made with different amounts of fabric sheets, spools of thread, and cases of dye. Caps are made with 10 fabric sheets, 6 spools of thread, and 3 cases of dye. Shirts are made with 2 fabric sheets, 3 spools of thread, and 8 cases of dye. Pants are made with 5 fabric sheets, 11 spools of thread, and 6 cases of dye. If fabric sheets costs \$7, spools of thread costs \$3, and cases of dye costs \$7, what is the cost of each of the three products?

- 43) The monthly payment for a college loan depends upon the annual interest rate, the amount of the loan, and the length of the loan. The matrix shows different monthly payments (in hundreds of dollars) for a loan. The amounts of the loans are listed as rows: \$16,000, \$19,000, \$21,000 in order. The time in years, 15 years, 10 years, 9 years are listed in the columns. If you are given the following matrix, what is the monthly payment for a loan of \$3,000 taken out for 15 years?

$$\begin{bmatrix} 6 & 7 & 6 \\ 4 & 6 & 7 \\ 4 & 4 & 5 \end{bmatrix}$$

- 44) The monthly payment for a house loan depends upon the annual interest rate, the amount of the loan, and the length of the loan. The matrix shows different monthly payments (in hundreds of dollars) for a loan. The amounts of the loans are listed as rows: \$7,000, \$20,000, \$9,000 in order. The time in years, 3 years, 12 years, 13 years are listed in the columns. If you are given the following matrix, what is the monthly payment for a loan of \$8,000 taken out for 9 years?

$$\begin{bmatrix} 5 & 3 & 1 \\ 1 & 3 & 1 \\ 1 & 4 & 5 \end{bmatrix}$$

- 45) The monthly payment for a boat loan depends upon the annual interest rate, the amount of the loan, and the length of the loan. The matrix shows different monthly payments (in hundreds of dollars) for a loan. The amounts of the loans are listed as rows: \$3,000, \$15,000, \$16,000 in order. The time in years, 17 years, 13 years, 21 years are listed in the columns. If you are given the following matrix, what is the monthly payment for a loan of \$4,000 taken out for 16 years?
- $$\begin{bmatrix} 2 & 4 & 7 \\ 9 & 7 & 1 \\ 1 & 5 & 9 \end{bmatrix}$$
- 46) The monthly payment for a house loan depends upon the annual interest rate, the amount of the loan, and the length of the loan. The matrix shows different monthly payments (in hundreds of dollars) for a loan. The amounts of the loans are listed as rows: \$8,000, \$13,000, \$14,000 in order. The time in years, 9 years, 12 years, 19 years are listed in the columns. If you are given the following matrix, what is the monthly payment for a loan of \$15,000 taken out for 9 years?
- $$\begin{bmatrix} 7 & 6 & 8 \\ 5 & 3 & 8 \\ 7 & 8 & 4 \end{bmatrix}$$
- 47) The David Inc Company has 3 products: caps, shirts, and pants. All three types are made with different amounts of fabric sheets, spools of thread, and cases of dye. Caps are made with 9 fabric sheets, 2 spools of thread, and 5 cases of dye. Shirts are made with 5 fabric sheets, 11 spools of thread, and 11 cases of dye. Pants are made with 3 fabric sheets, 6 spools of thread, and 10 cases of dye. If fabric sheets costs \$2, spools of thread costs \$9, and cases of dye costs \$9, what is the cost of each of the three products?
- 48) The Simple Company has 3 products: cookies, donuts, and cakes. All three types are made with different amounts of cups of flour, cups of sugar, and eggs. Cookies are made with 2 cups of flour, 5 cups of sugar, and 2 eggs. Donuts are made with 9 cups of flour, 7 cups of sugar, and 9 eggs. Cakes are made with 2 cups of flour, 3 cups of sugar, and 4 eggs. If cups of flour costs \$8, cups of sugar costs \$6, and eggs costs \$7, what is the cost of each of the three products?
- 49) The David Inc Company has 3 products: wiggles, woggles, and waggles. All three types are made with different amounts of caps, kits, and cots. Wiggles are made with 4 caps, 7 kits, and 2 cots. Woggles are made with 11 caps, 5 kits, and 5 cots. Waggles are made with 5 caps, 3 kits, and 3 cots. If caps costs \$4, kits costs \$8, and cots costs \$11, what is the cost of each of the three products?
- 50) The NonExistant Company has 3 products: wiggles, woggles, and waggles. All three types are made with different amounts of caps, kits, and cots. Wiggles are made with 9 caps, 3 kits, and 8 cots. Woggles are made with 2 caps, 10 kits, and 9 cots. Waggles are made with 10 caps, 10 kits, and 11 cots. If caps costs \$10, kits costs \$10, and cots costs \$6, what is the cost of each of the three products?

51) $-3x - 3y = -1$
 $2x + y = -4$

52) $3x - y = -2$
 $-3x + y = -3$

53) $4x + 3y = 3$
 $-3x + 3y = -3$

54) $-x + 3y + z = 13$
 $16x - 4y + 7z = -30$
 $8x + 15y + 7z = 43$

55) $-3x + 4y + 8z = 64$
 $9x + z = 37$
 $-9x + 4y - 4z = 28$

56) $x + 2y + 8z = 21$
 $19x + 9y + 2z = 104$
 $-3x + 8y + z = 32$

57) $-3x - y = -3$
 $3x - 5y = 3$

58) $3x - 3y = 2$
 $2x - 4y = 2$

59) $-3x - 3y = -4$
 $4x + 2y = 3$

60) $3x - 4y = 3$
 $x + y = 1$